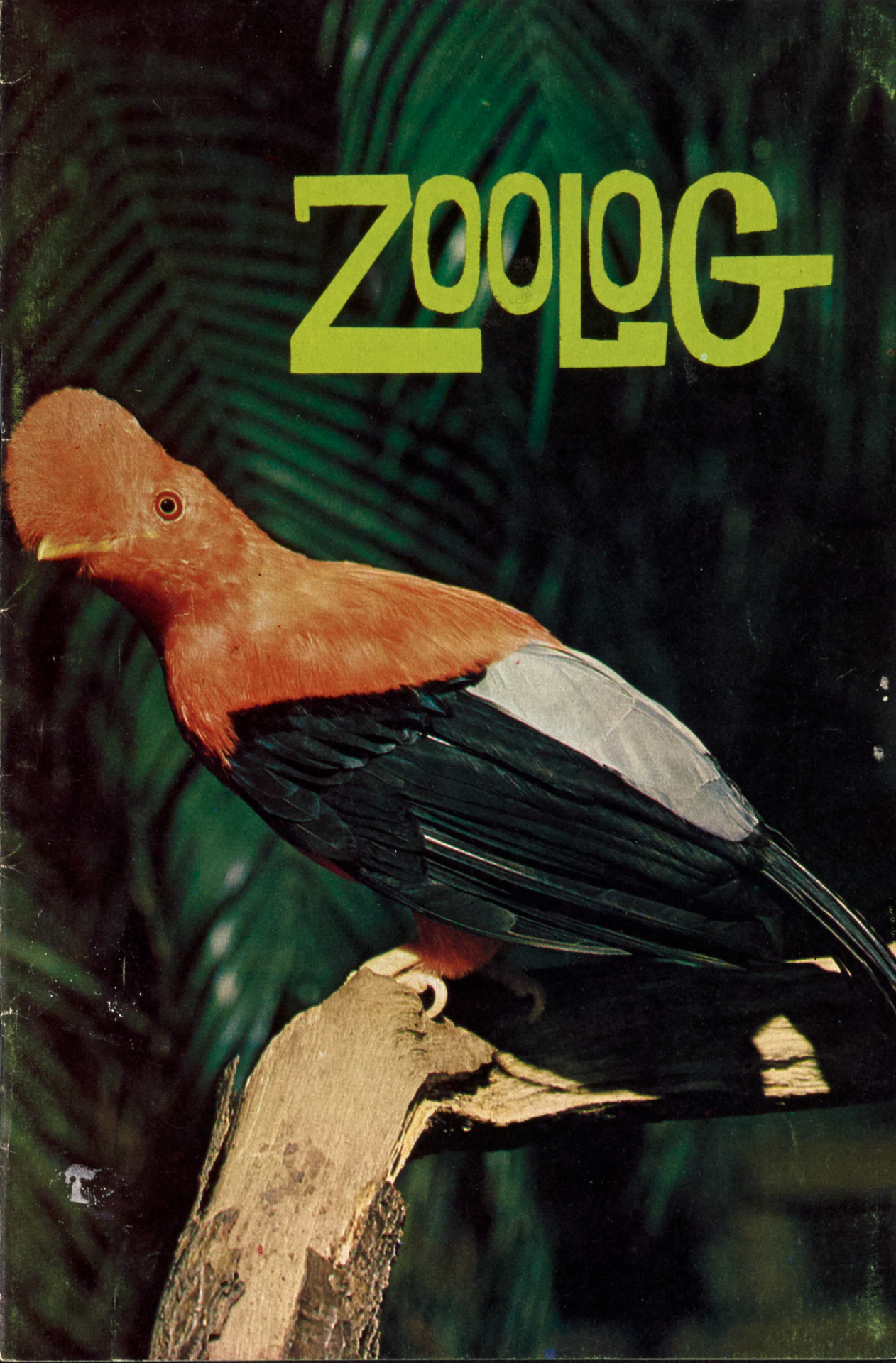
ZOOLOG

Notice

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Our cover shows a Cock of the Rock.
Photo by Shell-Mex

Zoolog, Volume 12, Issue 3, Autumn 1971
Publication of the Zoological Society of Manitoba and the Manitoba Naturalists Society
Editor — Dieter H. Schwanke
Associate Editor — Peter Press

Free to members of the Zoological Society of Manitoba and members of the Manitoba Naturalists Society
Mailed subscriptions $2.00 per year. Single copy 60¢.
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A Tropical House

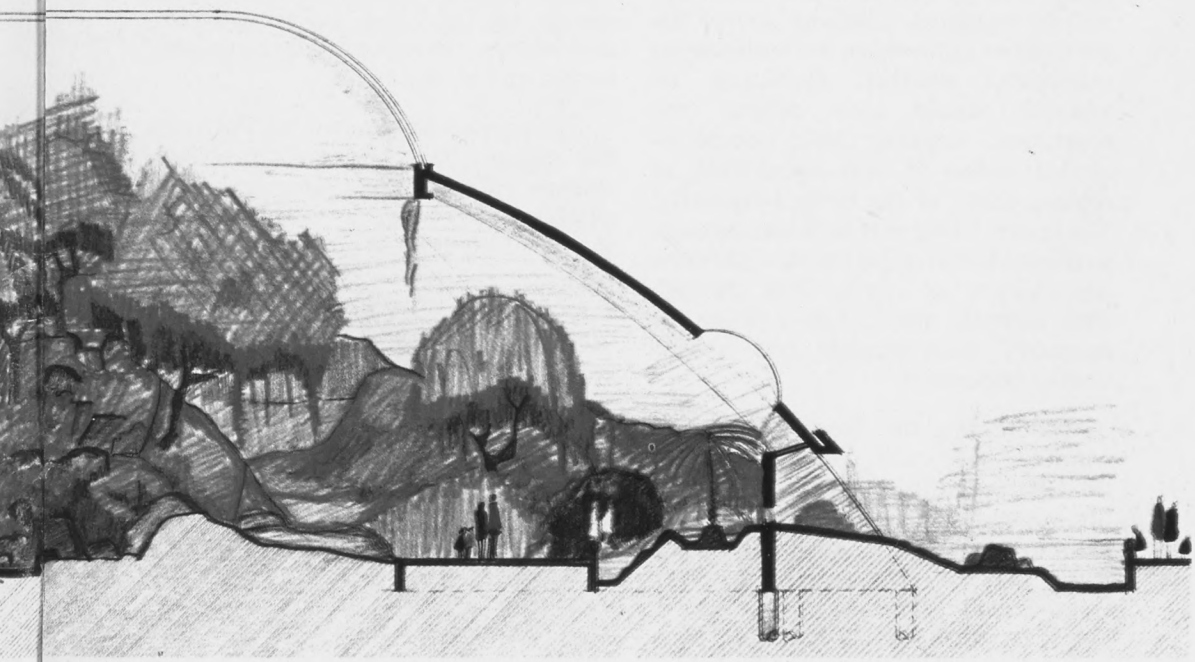
CLIVE ROOTS

With the completion of the Tropical House in a few months, the Assiniboine Park Zoo will be able to increase its animal collection by almost one hundred species — over half its present holding capacity. Size of the collection is not necessarily indicative of a good zoo of course, and many zoos with inherited archaic buildings crammed with small cages are able to display

in one building more species than our current zoo total. In the compact older zoos, the desire to exhibit a comprehensive collection often resulted in even new houses being constructed on the same old cage-upon-cage principle, even if bars and bare concrete had been replaced with plate glass and mosaic tiles.

We have no wish to exhibit the largest species collection, just a representative one, and certainly would never import animals for which we did not have suitable accommodation. A suitable accommodation means more than just sufficient space. However, the time has come for us to exhibit a wider range of smaller animals, the type discerning visitors expect to see when they visit a large zoo, such as the giant snakes, colourful tropical birds, crocodiles, giant tortoises, otters, the smaller delicate monkeys and many others. While some of these animals could be acclimatized to temperatures just above freezing point, many require high temperatures throughout the year, particularly the reptiles which of course cannot generate their own body heat. To enhance any exhibit of these animals it is desirable to include tropical plants, which also need a high temperature, preferably about 75 degrees Fahrenheit. Hence the Tropical House, where it will be possible to display a wide selection of these animals throughout the year, whatever the outside temperature.

Egg shaped, and topped with a translucent dome, the new building



will cover an area of approximately 12,500 square feet, over half of which will be put to double use. The whole floor space will be a landscaped and planted free flight area for tropical birds, and within this will be situated seven low-walled exhibits for mammals, birds and reptiles. By increasing the level of the landscaping on the southern half of the floor area, we are also able to utilize the space beneath the 'hill' for eleven exhibits, mainly glass-fronted, for mammals and reptiles which could not be kept in the main hall, for a number of reasons. Many animals are destructive to vegetation if confined in a relatively small area, and even the attentions of small birds, continually eating buds and young leaves, retards plant growth, eventually causing the death of some specimens. The destructiveness of the large-billed-members of the parrot family for instance, and the plant damage caused by the harsh droppings of carnivorous birds such as the owls and terns can well be imagined. Likewise any of the primates or squirrels or the herbivorous mammals, whether terrestrial or arboreal would soon destroy the vegetation. Reptiles could not be included unless it was acceptable to replace them, or the birds, frequently. The reason being that bird loss through snake predation or just mere night-time disturbance, or reptile loss through their secretive diurnal habits makes the necessary daily health and feeding checks impossible.

On entering the Tropical House, a winding path will take the visitor through a profusion of tropical plant-life, interspersed with dead trees as perching sites for the birds. At ground level, Peacock, Pheasants, Tinamous, Quail Doves, Bleeding Heart Pigeons, Sun Bitterns, Crowned Pigeons, Pittas, Ground Thrushes, Wood Partridges and many other basically terrestrial species, will be seen scratching amongst the soil for invertebrates. Above, either perched at arms length from the path or circling the building above visitors' heads, will be over one hundred birds of many species. Only those known to be non-destructive will be displayed, and emphasis will be on unusual colour or form. Most of these birds will be of the omnivorous or frugivorous types, including several species of contingas such as the Cocks of the Rock and Bellbirds. Colourful African starlings such as the Royal, Splendid Glossy, Magpie and Bristle-crowned will vie with Yellow-breasted Fruit Pigeons, Fairy Bluebirds, Kingfishers, Ross' Touraco, Robin Chats, Barbets and many others. Although these birds are seldom interested in plant-life the maintenance of their area necessitates daily leaf sponging and branch scrubbing, and for these reasons only sturdy resilient plants will be included. Several species of ficus and palms will predominate as their leaves stand up well to this sort of treatment.

The seven low-walled exhibits in the main hall will accommodate animals of the non-jumping, non-climbing (at least up a three foot vertical wall) type. Another important consideration which we have not forgotten is that they are also non-bird-eating. Two of these displays will be occupied by reptiles, one a sand-based area for a number of Giant Tortoises, the other a tropical pool for rare turtles such as the South American Matamatas and snake necked species. Two larger exhibits, ones which really could be termed ecological displays, will include arboreal, terrestrial and burrowing animals. In the trees of these areas will climb Sloths, Taman-

duas and South American Tree Porcupines. Beneath them will roam Capybaras and Giant Anteaters and several smaller mammals like the Armadillos and Acouchies will have burrowing facilities. It is hoped that such rare animals as Tree Kangaroos and Pacaranas will be available eventually to include in one of these areas. We cannot, of course, purchase every desirable specimen in time for the completion of our building. Like rare works of art many are available very infrequently and it is quite likely that it will take several years to achieve the ultimate in animal exhibits. One of these displays-within-a-display will be allocated to the wading birds, and naturally will contain a pool and adjacent sandbank. The birds displayed here – Jacanas, Stilts, Plovers and small waterfowl, will be free to come and go as they please once they have become established, but will almost certainly spend most of their time at the water's edge. The foliage from the planted areas will in all instances be encouraged to envelop these exhibits.

Towards the rear of the building the path enters a tunnel from which a number of brightly lit cages can be viewed, the semi-darkness of the tunnel enhancing their inhabitants and eliminating reflection. Endangered Mongoose and Red-fronted Lemurs and other rare primates such as Black and White Colobus Monkeys and Spectacled Langurs will be kept here, alongside enormous Malabar Squirrels, and several species of the minute Marmosets and Tamarins, each with their outdoor enclosures for the summer months. An exhibit of large constricting snakes, such as the Reticulated, Light phase Indian, and African Pythons and Cuban Boas, will also be included in this area. Two open displays viewed from the pathway over a low wall, will contain a group of tropical otters and a selection of crocodilians, hopefully the endangered Cuban Crocodile, Mississippi and Chinese Alligators and Ghavials.

Experiences at Frobisher Bay

PETER M. PRESS

I arrived in Frobisher Bay at six o'clock in the morning. A cold wind was blowing from the north with rain on its edge and the temperature a few degrees above freezing. To the seaward side of the settlement, the bay was filled with rotting, dirty sea-ice that had been piled into the shallows by the north wind. Across the inlet the blue-grey cliffs on the north shore appeared to be truncated by low dark scud. The settlement of Frobisher Bay offered a few bravely-bright houses but this gesture was submerged by the sombre profile of ice shriven hills that surrounded it.

The fact that the plane was six hours late – it had blown a tire on take-off, necessitating a grand tour of Winnipeg at eight thousand feet for two and a half hours, in order to burn off excess fuel – did not, to say the least, enhance my mood.

Within half an hour however, we were the guests of the teachers at the local school who opened their apartments and treated me, and dozens of other crotchety geographers to warm breakfasts and royal hospitality.

One of my first concerns, having been restored to a degree of normality, was to enquire of the chances of seeing wildlife. I was introduced to Bill Loney, a fine young man who had spent several years in the Arctic, and who was a keen and able field man. Within a very short time I was being regaled with stories of Gyrfalcons flying past the window, of nesting Snowy Owls, and with a wealth of other observations of wildlife.

Having shown so much interest Bill asked if I would like to see the nests of a Rough Legged Hawk, Ravens, and a Peregrine Falcon!

A half hour later we had tramped through the settlement and were headed for a narrow ravine some four miles from the town. We took the northern slope climbing steadily over broken angular rocks. The ground cover – mosses and lichens and diminutive willows – showed no signs of germination even though it was the third week in June, but Arctic poppies, a delicate yellow bloom, showed through in the drier gravelly areas.

As we made our way over this heath-like landscape, with its spongy mosses alternating with great expanses

of striated glacial pavement strewn with "erratics" all shapes and sizes, we saw a single Raven, several pairs of Snow Bunting, and heard the nuptial song of Lapland Longspurs that provided the only sound apart from the wind tugging at the vegetation.

We had reached a height of some two hundred feet. The wall of the ravine on the opposite bank towered high above us and plunged almost sheer into the little valley below. It was at this point that Bill said that we should see the Roughlegs at any time now. The Rough Leg is not an unfamiliar bird in the prairies. In late March and early April they can be seen commonly — dozens in a day sometimes — on their long journey north to their breeding range. But suddenly to find oneself on their nesting territory and to hear their sad cat-like cries was for me a totally new experience. We searched for the nest without success, but it was obviously near at hand as the area was strewn with disgorged pellets composed of fine fur and small bones. As we scoured the area the pair circled our heads crying plaintively.

Then — another sound! From high up on the cliff came a strident alarm note like demented laughter, each phrase repeated again and again. At that moment a magnificent tercel, its silhouette contrasting darkly against the sky, swept into view!

I cannot really remember how long we stood there or in what sequence the subsequent actions occurred, but this beautiful, streamlined blue-grey and white bird afforded us an aerial display without parallel. With a series of shallow stoops, feints to the left and then to the right, it hovered momentarily, then plummetted dozens of feet, and suddenly launched itself into a determined dive at terrific speed only to spectacularly brake itself within twenty feet of where we were standing. I was amazed at the acceleration that it was able to generate with three or four paddle like beats of its wings that carried it from the top of the distant cliff to its break-off point in front of us in so few seconds. This display was repeated over and over again, whilst the hills and the valley echoed with the bird's anxious cries.

We sat below a convenient rock, and as we ate our lunch we scanned the cliff through binoculars to see if we could locate the Peregrine's nest. While sitting there the tercel returned to its vantage point for a while and then proceeded to flit nervously from perch to perch, uttering an irritated chacking sound, only to break out again in its now familiar cry.

We found the two Ravens nests; they were some sixty feet from the Peregrine's vantage point, and within twenty feet of one another. On both nests the brooding bird stayed low on the rough heap of twigs that formed the nest, and at the lower site the male stayed within a yard of its mate with its back towards us, and remained absolutely motionless during the Peregrine's clamourous performance. We thought that we could see the Peregrine's nest, but if it was, the bird's camouflage was so effective that we could not really be certain.

I was reluctant to leave this place, — this hallowed ground, like a Greek temple complete with its Olympian spirit, could be but a magnificent stage for the final act of a tragedy worthy of, or perhaps worthier than that of the classical tradition. But this bird will not be responsible for its own destruction as the Greeks were. Its passing will be the inevitable handiwork of a far more sinister enemy.

Unlimited ducks

R. BRUCE SMITH

Ducks Unlimited is a private non-profit conservation organization dedicated to the perpetuation and increase of North American waterfowl resources through restoration, preservation and creation of prime breeding habitat in Canada.

The foundation and background of Ducks Unlimited is somewhat unique in the conservation field.

Following the severe drought of the early thirties, North America's waterfowl population was seriously depleted.

An American organization called 'More Game Birds in America' entered the scene as a concerned body, and conducted thorough investigations into the plight of the waterfowl. It was very soon realized that upwards of 75% or more of North America's waterfowl were totally dependent upon the breeding areas of western Canada for survival.

At first glance at a map of Canada, it would appear that the myriad of lakes and rivers in the three prairie provinces, the Yukon and the North West Territories would provide abundant natural nesting habitat for migrating waterfowl. But the investigations clearly indicated that such was not the case. Much of the apparent available habitat in the region was marginal, and unsuited to the waterfowl population.

Perhaps because of food supply, vegetation, or some other unknown reasons, migratory waterfowl preference for nesting habitat fell into the relatively small 166,000 square mile area of the actual prairie regions and aspen parklands.

Much of this area has been heavily influenced by agricultural activities, with a great deal of the natural habitat either destroyed, or in danger of being destroyed. Intensive drainage and cultivation programs, aimed at maximizing available cultivated land, were posing a great threat to the waterfowl population by contributing to an unstable water supply.

The 'More Game Birds in America' group quickly realized that unless action was taken to ensure that areas were made drought-resistant, waterfowl could soon become a thing of the past.

There was no legislation in Canada

Photo by Peter Press

Canvasback

that provided for the spending of tax money for this purpose, and United States law forbade the spending of public funds in a foreign country.

The solution depended entirely on the formation of an organization, financed by private funds, which could operate in Canada building and restoring waterfowl habitat.

Backed by several interested businessmen, sportsmen and conservationists, who gave much of their time and money, Ducks Unlimited was incorporated in the United States on January 29th, 1937, and the drive for funds began.

One year later in early 1938, Ducks Unlimited (Canada) was formed as the operational body, and the first Ducks Unlimited 'Duck Factory' – Big Grass Marsh in south central Manitoba – was completed later in the same year.

Since its humble beginning over three decades ago, Ducks Unlimited has grown into one of North America's leading conservation organizations, investing millions of American dollars in over 1000 water management projects across Canada.

The projects, ranging from the half million acre Mawdesley Del-Mar Marsh complex near The Pas, to numerous 50 acre or less potholes spread across much of Canada, provided over two million acres of permanent available water.

Additional millions of acres of land surrounding the projects have been made suitable as nesting areas by the entrapped water, further adding to the total waterfowl habitat.

But the benefits of Ducks Unlimited projects have not been restricted to waterfowl, although they are its prime concern. Indirectly, projects have extended benefits to many other areas.

From the early spring, when runoff water is controlled and held to alleviate flooding, to the late summer when the entrapped water is slowly released to the dry soil, Ducks Unlimited assist the local agricultural community.

In other locales, Ducks Unlimited projects provide recreation waters for boating, swimming and fishing, while in still others they supply simply 'a little bit of nature'.

Besides the direct benefits provided ducks and geese, Ducks Unlimited water management projects provide habitat for scores of other wildlife.

Ducks Unlimited projects provide habitat for some 251 species of birds, 60 different mammals and 10 species of fish.

In this day and age when interest in conservation, ecology and environment have become so much a part of our everyday thoughts, the achievements of Ducks Unlimited in improving the environment gain strengthened importance. Viewed from the unique standpoint of the organization, they are unparalleled.

Ducks Unlimited's funding comes almost entirely from Americans, most of whom are hunter-sportsmen. Some of the money is collected as an assessment on hunting licenses, but much more comes from private donors – over 60,000 last year – who desire to see a continuance of North America's waterfowl.

While undoubtedly concerned about the availability of waterfowl for the fall hunting harvest, these hunters are practicing the prime rule of conservation – replenish what you take to ensure the future.

In fact, Ducks Unlimited has carried that philosophy one step further – ensure the resource is adequate before you use it, and then replenish what you take.

The Hoary Bat

ROBERT E. WRIGLEY
Manitoba Museum of Man and Nature

Bats have long been associated with strange superstitions and misinformation, since few facts were known about these little creatures of the dark. For those able to approach the study of bats with an open mind however, there lies a fascinating story, often more unbelievable than the supernatural tales involving these animals.

Bats arose more than 35 million years ago from a mammalian order of insectivores — the same order which also gave rise to the primate order of which man is a member. Though superficially resembling a flying mouse, bats are not closely related to the rodents. Among the mammals, only bats developed true flight. This radical mode of locomotion opened up a new way of life, and new opportunities for exploiting resources formerly out of reach of ground and tree dwellers. So successful was this evolutionary experiment that at present, bats are second only to rodents in actual numbers and number of species. The majority feed on flying insects, but others have more specialized diets — flowers (mostly pollen and nectar), fruit, blood, fish, frogs, lizards, birds and small mammals.

The wings of bats are extensions of the skin from the back and belly. This thin membrane extends out from the elongated fingers and arms to the hind limbs, where another membrane spreads from the hind limbs to the tail. The wingspan may range from about eight inches to five feet. Bats literally swim through the air, using the hind limbs as well as the long forelimbs. A clawed thumb assists in alighting and crawling, and the five toes on each hind foot suspend the bat in its characteristic upside-down, resting posture. The animal simply drops from the perch, opens the wings and flies away. Compared to birds, bats fly slowly. However, as aerial acrobats, their maneuverability is unsurpassed by most birds. The large surface area of the wing membranes loses considerable water by evaporation, hence bats must drink often. They skim the surface of a pond or stream and scoop up water without having to alight.

The face of many species resembles that of a bulldog, with numerous folds and wrinkles. Bats are not blind but have fairly large eyes for their

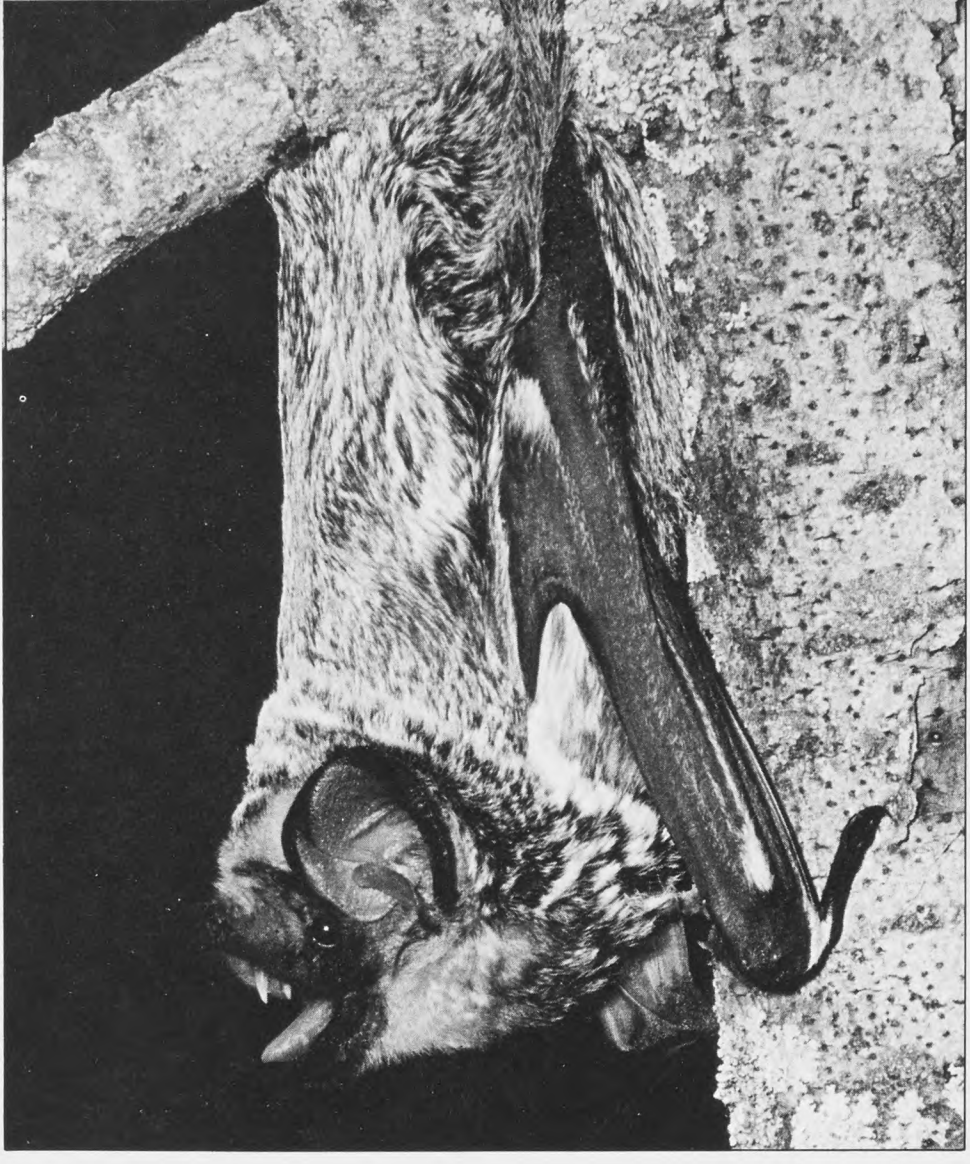


Photo by Robert Taylor, September 1971

size. They rely more on echolocation than vision while navigating. High frequency sounds, emitted through the mouth or nose, rebound off objects and the returning echo provides information about obstacles and insect prey. Homing in on a flying insect, the bat traps its prey in the curled tail membrane. A quick bend of the body and the insect is transferred to the mouth. An individual may eat over half its weight in insects each night.

Having reviewed bats in general, the life history of a Manitoba species can now be described. Three specimens of the rare Hoary Bat were recently received by the Manitoba Museum; from Fort Garry, Piney and Amaranth. The only other records of its occurrence in the province are from Treesbank, Portage la Prairie, and the Winnipeg area. This is a large species, with a wingspan of 15 inches or more. The brown pelage has a frosty appearance due to white tips on the hairs. It is more heavily furred than most bats,

with hair covering even the tail membrane. Its range is enormous, extending from Canada to Argentina, and the West Indies to Hawaii. In the temperate region, the Hoary Bat undertakes extensive annual migrations. Wintering in the southern United States and Mexico, pregnant females leave for the nursery range in the north (including the prairie provinces) in April and May. Most males migrate separately from females, the majority heading toward the northwestern states.

The females which come as far north as southern Manitoba arrive in June, and soon after give birth to two young. The Hoary Bat retires to a leafy tree branch during the day and it is here, that the young are born. They immediately cling to the breast of the female and soon begin to suckle. The mother may carry them along to a new roosting site, the twins attached securely to the chest fur. She leaves them hanging in their leafy retreat while foraging for insects. The female continues to carry the young even after their combined weight is greater than hers, and this occasionally results in the three bats tumbling to the ground. The female then has difficulty becoming air-borne. The young grow rapidly and by August they are almost full size, and capable of executing the elaborate maneuvers necessary in catching flying insects.

The flight of this species is swift and often direct, resembling that of a bird. An audible chattering sound may be heard if the bat passes close to the observer. Though little is known of their feeding habits, they have been observed pursuing the smaller bats, as well as insects.

In late August and throughout September, families of Hoary Bats congregate and commence the long journey south. Waves of several hundred individuals have been observed along both Atlantic and Pacific coasts, and several areas in the mid-west. Migration patterns are largely unknown however, as there have been no successful banding studies. Mating is thought to occur during September and October, the sperm being stored in the uterus until the spring breeding season.

The Hoary Bat is such a strong flyer that it may turn up anywhere during migration. The individuals reaching Hawaii were probably blown off course while moving along the Pacific coast. This population has since evolved into a small, reddish-colored race. Records from Iceland, Orkney Islands (fall and winter reports) and Southampton Island (spring report) were no doubt stray migrants.

Hoary Bats may live to repeat their astounding journeys for 3 to 14 years. They fall prey to owls, hawks, snakes and a number of mammalian carnivores, however most probably succumb to injuries and disease. The fact that bats subsist mainly on insects (many injurious to crops), may lead to the extinction of many species of bats. Insecticides, which are not quickly broken down after their intended effect, may accumulate to lethal levels in the bats' tissues. Drastic declines in the numbers of several abundant species due to insecticide poisoning have recently been reported. The effect on rare species such as the Hoary Bat is unknown, and likely to remain so until too late. Anyone having the chance of observing this colorful summer visitor to Manitoba is indeed fortunate, for it is so rare that almost every specimen reported adds to our knowledge of the species.

Manitoba's designated wildlife lands

CAROL A. SCOTT
Resources Management Division
Manitoba Department of Mines,
Resources and Environmental
Management.

The last few years demonstrated an increasing interest in wilderness and wildlife throughout North America. Coupled with this interest is the need for assurance that these will be available to future generations. Both hunters and naturalists are concerned that areas be retained not only for wildlife but also for their respective forms of recreation.

The Department of Mines, Resources and Environmental Management has attempted to meet the needs of these groups through a program of land acquisition and subsequent management for wildlife. In common with most wildlife resource departments in North America, however, Manitoba's original Game and Fisheries Branch became involved almost entirely with game species in the early part of this century. Clearly the value of game animals to the Provincial economy as demonstrated by hunter expenditures and licence sales, was an early motivation for their management to ensure a sustained yield. An added stimulus may have been the fact that hunters showed an early tendency to band together to make known their desires for the protection of their sport. The year 1970 marked a significant change in the legislation behind the Manitoba Department of Mines, Resources and Environmental Management's wildlife sector. With the passing of major amendments to The Wildlife Act, this sector's responsibility widened to include, exclusive of fishes, all vertebrate animals of any species or type wild by nature in Manitoba.

In the earlier part of this century, traditional game or economically important species comprised the area of greatest concern, a concern which of course centred on their availability for harvest. The Federal government, who until 1930 were responsible for much of Manitoba's resources, recognized and stated a need to guarantee the general public access to a reasonable

and fair share of the game by establishing public shooting areas. By 1925, six areas had been withdrawn from sale and permanently reserved for public shooting at Whitewater Lake, Oak and Plum Lakes, Pelican Lake (southwestern Manitoba), Netley Lake on Lake Winnipeg and Marshy Point, Lake Francis and Clandeboye Bay near Lake Manitoba. The latter two areas were later combined to form the basis of the present day Delta Public Shooting Grounds. In 1930, the majority of lands and resources were turned over to the Province and administration of the public shooting grounds became the responsibility of the Manitoba government.

Since 1930 various parcels of land have been added to most of these public shooting grounds and two additional ones created at Big Point on Lake Manitoba and at Waterhen Lake. The purpose of all public shooting grounds is first to guarantee hunting opportunity with a secondary purpose of encouraging game production. Although always open to public access, other uses such as haying and grazing are allowed under permit where no conflict with game production or the hunting season occurs.

Merely guaranteeing access to hunters however does not ensure a huntable surplus of game. This realization led to the creation of game preserves and bird sanctuaries throughout the province, to be succeeded by the wildlife management areas and refuges of today.

Under Manitoba's Wildlife Act, Crown lands may be designated wildlife management areas and maintained for the management and conservation of wildlife in the province. Wildlife management areas therefore can be developed only on government owned land and are primarily designed to preserve or improve habitat in key areas thereby ensuring wildlife survival. In the Interlake region, wildlife management areas were developed on lands shown to be better suited to this than any other form of land utilization. Wildlife is designated as the principal user of these areas. All other land uses must be considered secondary and land practices which are detrimental to wildlife must be prevented. Although it is better to purchase areas of existing good wildlife habitat rather than to attempt costly restoration of damaged areas, habitat improvement programs are often undertaken in wildlife management areas. This modification varies from controlling water levels in a marsh to tree planting for winter cover in an upland area. Within these designated areas hunting may be prohibited for some or all game species so that they can actually function as refuges. Vehicles too may be restricted or even banned during the hunting season as has been done in the Broomhill and Langruth wildlife management areas.

In contrast to the wildlife management area, the refuge designation is intended to protect the animals of an area directly. Many refuges are developed wholly or partly on private land often at the request of landowners. Their consent to this restriction on their land may be withdrawn at any time however, even after the refuge has been established. A refuge therefore may not be as permanent as a wildlife management area and wildlife biologists have no control over the land itself. There is thus no assurance that wildlife habitat values are respected. Four different types of refuges have been developed under provincial legislation. These are the wildlife refuge, game bird refuge, goose refuge and fur bearing animal refuge.

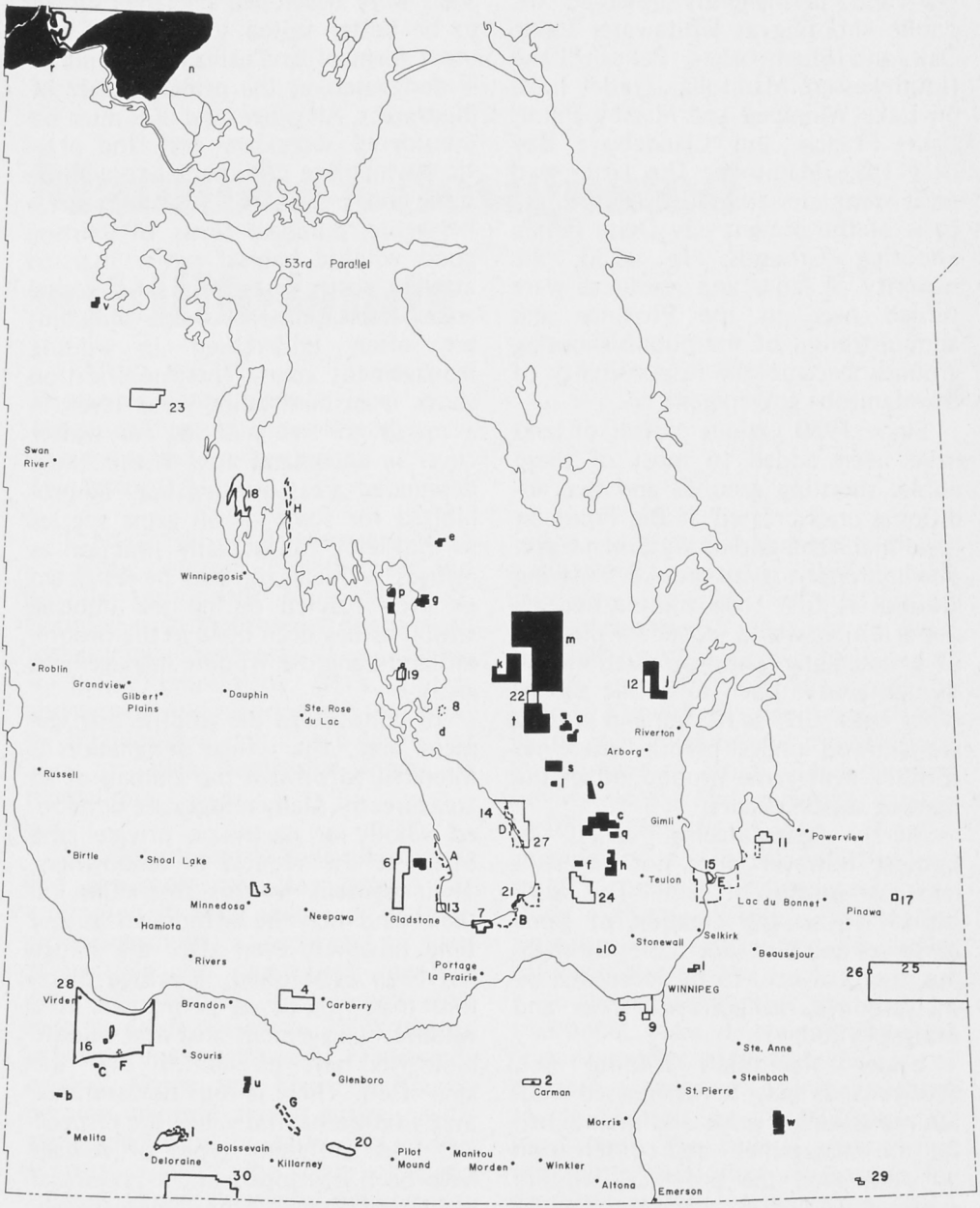


Fig. 1 Gross location of Manitoba's designated wildlife lands. (Prepared by W.A. Musker)

I. Public Shooting Grounds

A. Big Point
B. Delta
C. Maple Lake
D. Marshy Point
E. Netley
F. Oak Lake
G. Pelican Lake
H. Waterhen
I. Whitewater

II. Wildlife Management Areas

a. Broad Valley
b. Broomhill
c. Clematis
d. Dog Lake
e. Gypsumville
f. Harperville
g. Hilbre
h. Inwood
i. Langruth
j. Lee Lake
k. Little Birch
l. Lundar
m. Mantagao Lake
n. Tom Lamb (formerly Mawdesley)
o. Narcisse
p. Peonan Point
q. Sandridge
r. Saskeram
s. Sharpewood
t. Sleeve Lake
u. Souris River Bend
v. Steeprock
w. Watson P. Davidson

III. Refuges

Wildlife Refuges

1. Bird's Hill
2. Carman
3. Minnedosa Lake
4. Spruce Woods
5. St. Charles

Game Bird Refuges

*6. Big Grass Marsh
7. Delta
*8. Dog Lake Islands
9. Fort Whyte
*10. Grant's Lake
11. Jackfish Lake
*12. Lee Lake
*13. Lynch Point
14. Marshy Point
*15. Netley Marsh
*16. Oak Lake
17. Pointe du Bois
18. Red Deer Point
*19. Reykjavik
20. Rock Lake
21. St. Ambroise
*22. Sleeve Lake
*23. Swan Lake
*24. West Shoal Lake
25. Whiteshell

Goose Refuges

26. Alfred Hole
27. Marshy Point

Special Canada Goose Refuge

28. Oak Lake

Fur Bearing Animal Refuges

29. Red Pine
30. Turtle Mountain

Key To Map Showing Manitoba's Designated Wildlife Lands

* designates those game bird refuges in which a firearm may be in possession only when being transported on a public road.

Within the five existing wildlife refuges no person may hunt or trap, discharge or possess a loaded firearm. Thus all wildlife as defined in The Wildlife Act is protected and even the shooting of ground squirrels or house sparrows in these areas is prohibited. Persons living within a wildlife refuge are not prevented from keeping firearms in their homes however, as these would normally be unloaded.

A more specific type than the wildlife refuge is the game bird refuge. Here no one may hunt game birds as defined in The Wildlife Act or migratory game birds as designated by the Migratory Birds Convention Act although big game animals may be hunted in season. Waterfowl are thereby given some respite from gun pressure during their fall migration. Under The Wildlife Act, upland game birds are protected in these areas while the Migratory Birds Convention Act adds all types of waterfowl, cranes, rails and coots, shorebirds and wild pigeons. Two classes of game bird refuge have been established. In refuges such as Delta or St. Ambroise, no person may discharge a firearm although one may be in possession if it is not loaded. This type of refuge differs from the wildlife refuge therefore only in name. In the second class, exemplified by Big Grass Marsh, Grant's Lake and West Shoal Lake game bird refuges, firearms, whether loaded or not, may be in possession only when being transported through the refuge on a public road.

In addition to the two classes of game bird refuge which, by their nature offer protection to geese, two refuges have been created specifically for these birds alone. Both these refuges, the Marshy Point Goose Refuge on the east shore of Lake Manitoba and the Alfred Hole Goose Refuge at Rennie, resulted from private efforts to encourage breeding flocks of Canada geese. In these areas no person may hunt geese or be in possession of a goose carcass. Duck or upland game bird hunting is not prohibited however. A modification of the goose refuge is the Oak Lake Special Canada Goose Refuge where the protection extends to Canada geese only.

Refuges have also been created for Manitoba's fur bearers. A unique example is the Red Pine Fur Bearing Animal Refuge near Piney in southeastern Manitoba. In 1959, forestry officials observed that squirrel-cut cones comprised most of the red pine cones collected from this area for future seeding. As a direct result of this observation, a refuge was created primarily to protect the red squirrels of this district, although all other fur bearers are protected as well. The second fur bearing animal refuge in the Turtle Mountain area was originally created in 1911 to protect both game and fur bearing animals but its status has since been reduced to protect fur bearers only. Limited trapping under special permit is sometimes allowed here to decrease excessively high populations of several fur bearers.

Restrictions on trapping exist in other areas of Manitoba as well. Throughout northern Manitoba as far south as the 52nd parallel and east of Lake Winnipeg including the Whiteshell Provincial Forest, trapping is organized into a system of Registered Traplines. These are designed to distribute trapping opportunity among those persons deriving most or all of their livelihood from the harvest of furs. Within these areas trappers must be authorized by permit to trap a particular district. Each person, termed a Registered Trapper, may trap only on his own Registered

Trapline or on land which he owns or occupies as lessee, manager or operator.

Effective land management for wildlife purposes involves first gaining control over the land. Under The Wildlife Act, this may be obtained through purchase, exchange or expropriation, although the latter to my knowledge has never been invoked. Because of an alarming rate of habitat destruction on private lands, temporary reservations have been placed on several thousand acres of Crown land throughout southern Manitoba. These reservations ensure consideration of wildlife benefits if the land is considered for other uses. Investigations to determine the value of a particular area for one or more species or for game harvest are conducted and it is either incorporated into a wildlife management area or a public shooting ground or released. In many instances haying or grazing leases are issued for these reserved areas; however in other cases where habitat preservation is critical, they may be denied.

What is the future of Manitoba's wildlife lands program? Although it originated as a means of ensuring hunting opportunity despite increasing areas of private land, the program has progressed far beyond this stage. The major objective is to ensure a wildlife population for the recreational, economic and scientific benefit of present and future generations. Much remains to be done. Designated lands must be always under scrutiny to ensure their continuing usefulness and additional areas are needed. In cooperation with the F.R.E.D. Program (Fund for Rural Economic Development), marginal agricultural land in the Manitoba Interlake with value for wildlife is being purchased and incorporated into wildlife management areas. Fifteen were created in 1969 and enlargement of these as well as the creation of several new ones is currently under consideration. Southwestern Manitoba with only two small wildlife management areas to date in an area of intensive agriculture will see the addition of the Lauder Sandhills Wildlife Management Area this year.

Nonconsumptive utilization of wildlife, such as birdwatching and photography, is quickly becoming a major recreational activity. The increasing importance of this type of recreational pursuit is resulting in a greater consideration of all wildlife species, not only those that warrant a hunting licence. Two refuges, the West Shoal Lake and Grant's Lake game bird refuges are within reasonable driving distance of Winnipeg and have long been favoured sites for birdwatchers. Birdwatching opportunity and the development of an interpretive program for a marsh close to Winnipeg were considerations in the acquisition of the Oak Hammock Marsh. Animals rare or endangered in Manitoba or on a worldwide scale could well be the motivation behind future land allocation, should the need arise.

Manitoba's wildlife is a valuable resource, equally as important as its forests or minerals. It is essential that wildlife and wildlife habitat preservation be considered as a land use in its own right and not merely a secondary benefit of or even a hindrance to other forms of land utilization. Our wealth of wildlife deserves careful planning and management; the development and maintenance of wildlife lands is a part of this program.

Plant Invaders

PHYLLIS HILDERMAN
C. B. GILL

Accepting the standard definition of **weed** ... "a plant growing where man does not want it to grow", it becomes apparent that many plants traditionally called weeds for convenience may not in fact be weeds if no one objects to their existence, and conversely, a rosebush in the center of your proposed swimming pool takes on the quality of a weed.

Many of our weeds, often associated with increased agricultural costs, have been introduced from other parts of the world, and as they arrived without baggage (associated parasites and consumers) most are enjoying a new prosperity. It is interesting to note that introduced species usually make up the major proportion of vegetation to be found in a disturbed area. A visit to a vacant lot anywhere around the city will be sufficient to see many of these interesting plants.

Lamb's quarters — *Chenopodium album* is a commonly observed species, introduced from Europe. Belonging to the goosefoot family, this plant is enjoyed by livestock and humans as well. In early spring its tender shoots boiled like spinach, salted, peppered and buttered are supposedly a tasty source of Vitamin A.

Shepherd's purse — *Capsella bursa-pastoris* — is a European introduction. It belongs to the mustard family along with radish, cabbage, cauliflower and turnip. Members of this family are widely adapted to varying environments and include some of the most troublesome agricultural weeds. The little purse-shaped seeds are notched at the top and the whole plant turns gold in the fall. Similar species are the Frenchweed or stinkweed (introduced) and common peppergrass (native).

Common plantain — *Plantago major* — is an abundant plant and its tough anchorage system is a familiar frustration to gardeners. Considered an early European introduction by most sources, the plant is sometimes known as "Whiteman's foot" because it followed pioneer settlements into the wilderness.

Summer cypress — *Kochia scoparia* — is another European introduction found posing as a little shrub along sidewalks, and around parking lots in downtown Winnipeg. Its pleasing form and purple-red fall color made it popu-

lar as an ornamental until it was discovered that this plant (along with our native ragweeds) was responsible in large part for the suffering of hay fever victims.

Common burdock – *Arctium minus* – resembles our garden rhubarb (another Eurasian introduction) in its first year of growth but the fuzzy leaf and light coloured undersurface distinguish clotbur or bardane as it is also called. The flowers are purplish and protrude from a ball of barbed spines. When dried these make some of the best sticking burs to be found anywhere and consequently the seeds are easily distributed by furry animals and man.

Red root pigweed – *Amaranthus retroflexus* – is a coarse plant that is widely distributed and is thought to be native to tropical America. Roots and lower stems usually develop a pinkish coloration though this seems to vary. Young tender plants of this genus may be used as a "potherb" and the seeds have been used as "breadstuff" by south-western Indians in the United States.

Canada thistle – *Cirsium arvense* – is a troublesome weed to farmers and in spite of its name is an introduction from Europe. It apparently arrived in Quebec and was then transported to New England by French Canadians hence the name "Canadian". This thistle is distinguished from others by having male and female flowers on separate plants, stems without spiny wings and a creeping underground stem.

Timothy – *Phleum pratense* – and Brome – *Bromus inermis* – are two European grasses brought to this country and widely cultivated for hay and pasture. Both are now distributed over roadsides and wastelands throughout Canada and their distinctive flower heads are easily identified even in silhouette.

Curled dock – *Rumex crispus* – is a Eurasian or European introduction and one of the more conspicuous plants to be seen along roadsides at this time of year because of its chocolate colour and three foot height. The attractive seed heads are often used in winter bouquets along with strawflowers and showy grasses.

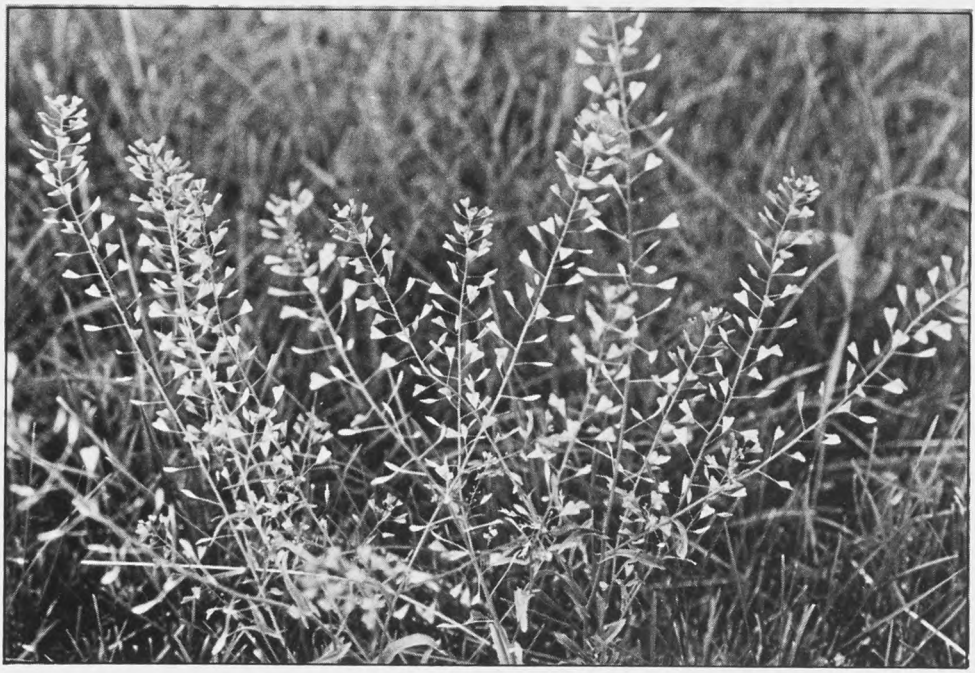
Ground ivy – *Glecoma hederacea* – is a member of the mint family and a Eurasian introduction. Preferring moist shady places, this species with its fragrant foliage and tiny blue flowers makes a lush carpet about six inches deep. Under these conditions it replaces most grass species, and the tidy homekeeper waging a relentless battle against this creeper in his lawn might well be advised to notice what an excellent groundcover it is and that it needs no mowing.

Round leafed mallow – *Malva rotundifolia* – is another Eurasian introduction related to the familiar hollyhock. It is sometimes called "cheese" and the reason for this becomes apparent upon examination of its small flattened gouda-like seed which can be nibbled. Related species are used in soups and stews as a potherb because of their mild "mucilagenous" juice, and one member of the family provides the syrup for making marshmallows.

This brief survey has included only a few of the more obvious non-native and non-horticultural species encountered in Winnipeg. More will be discovered if you care to look closely at the uncultivated vegetation in the city. Some of these plants are troublesome, some are beautiful, some are merely present, but they all have one thing in common; they are well adapted for survival in an environment which is becoming increasingly disturbed.

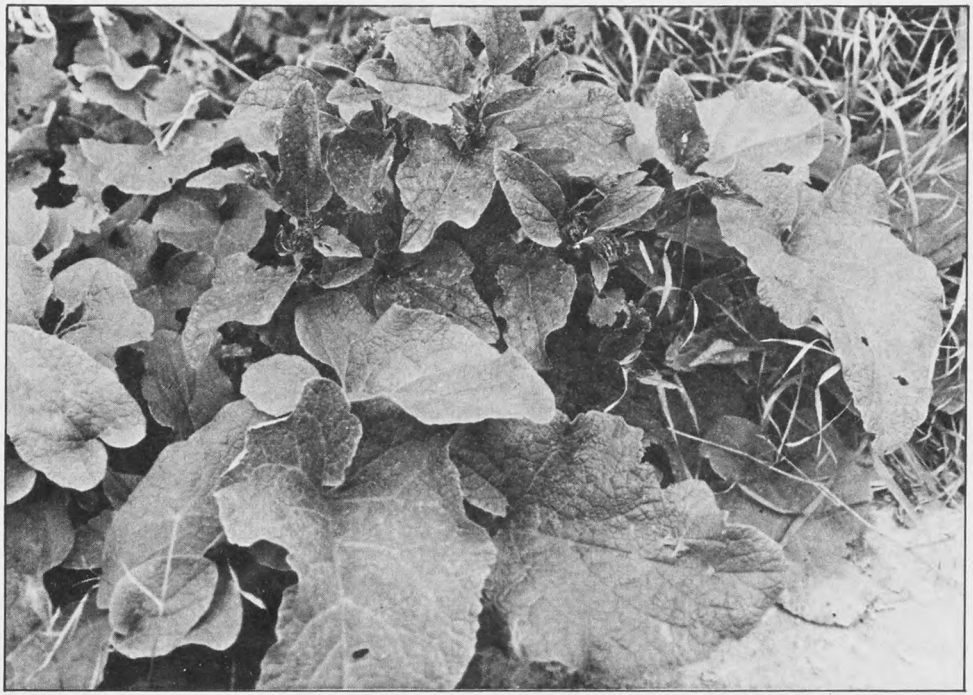
Lamb's Quarters, *Chenopodium album*

Red Root Pigweed, *Amaranthus retroflexus*



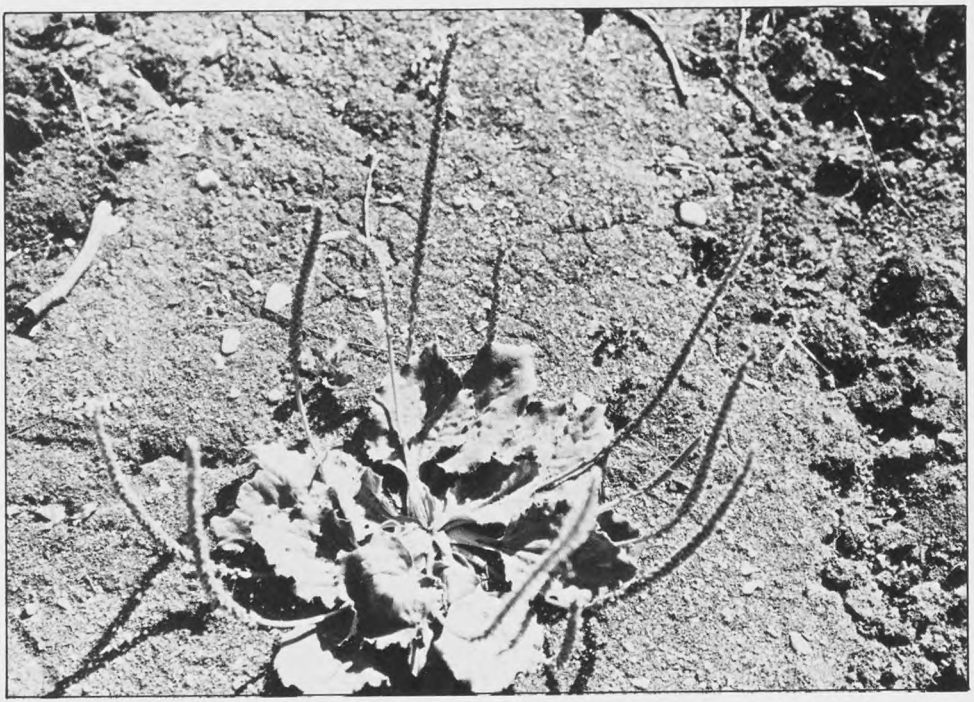
Shepherd's Purse, *Capsella bursa-pastoris*

Photos by Phyllis Hilderman, August 1971.

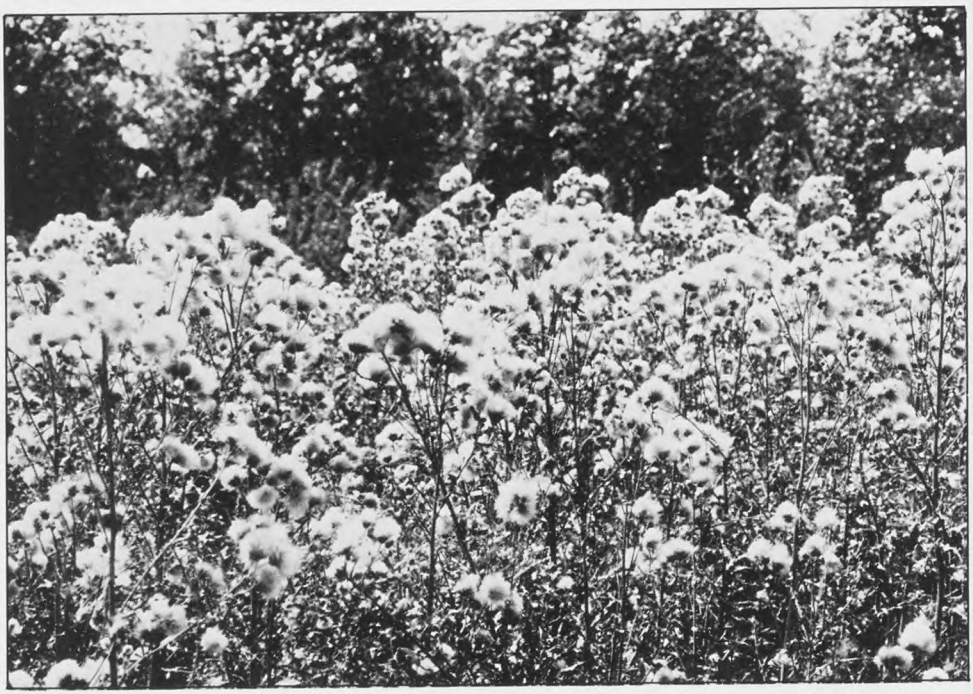


Common Burdock, *Arcticum minus*

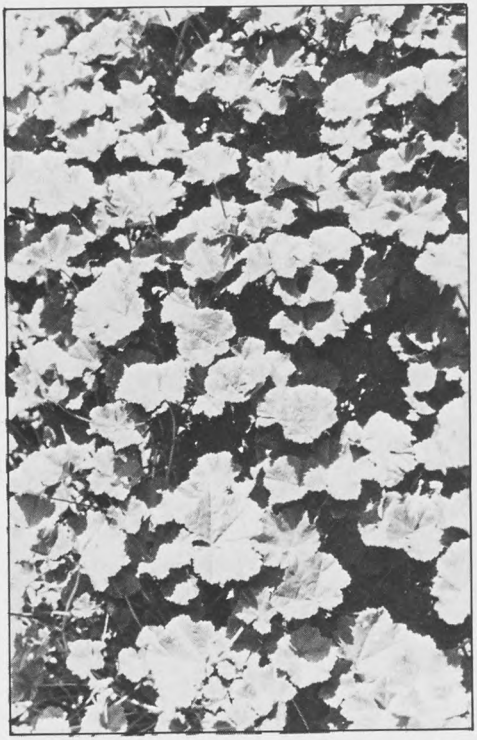
Summer Cypress, *Kochia scoparia*



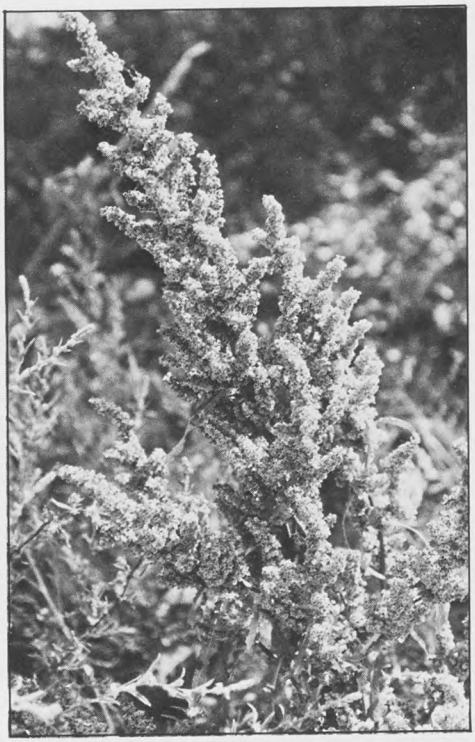
Common Plantain, *Plantago major*



Canadian Thistle, *Cirsium arvense*

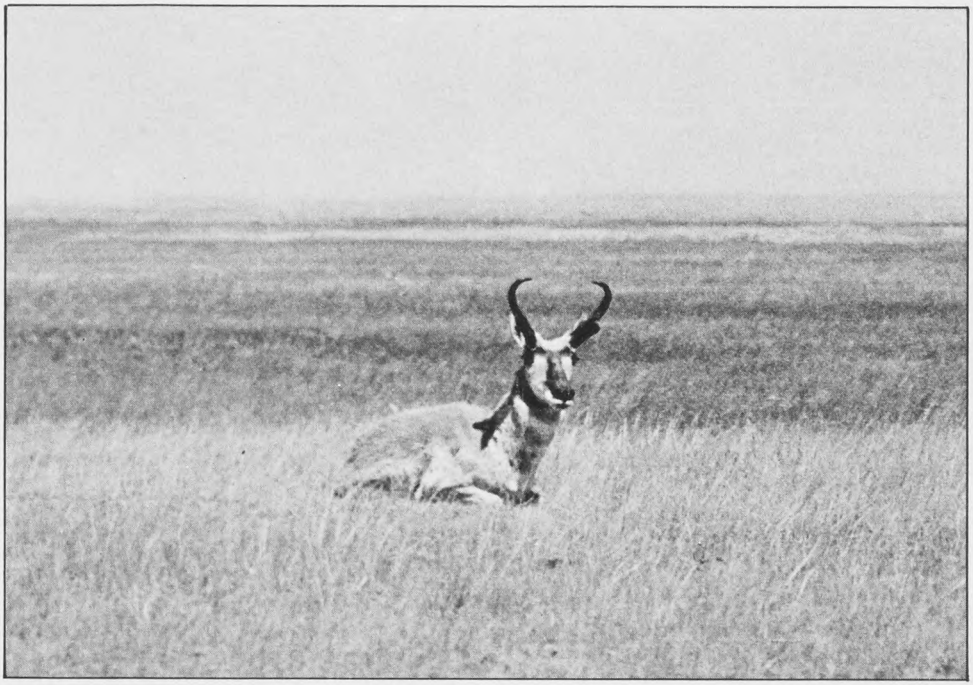


Round Leafed Mallow, *Malva rotundifolia*

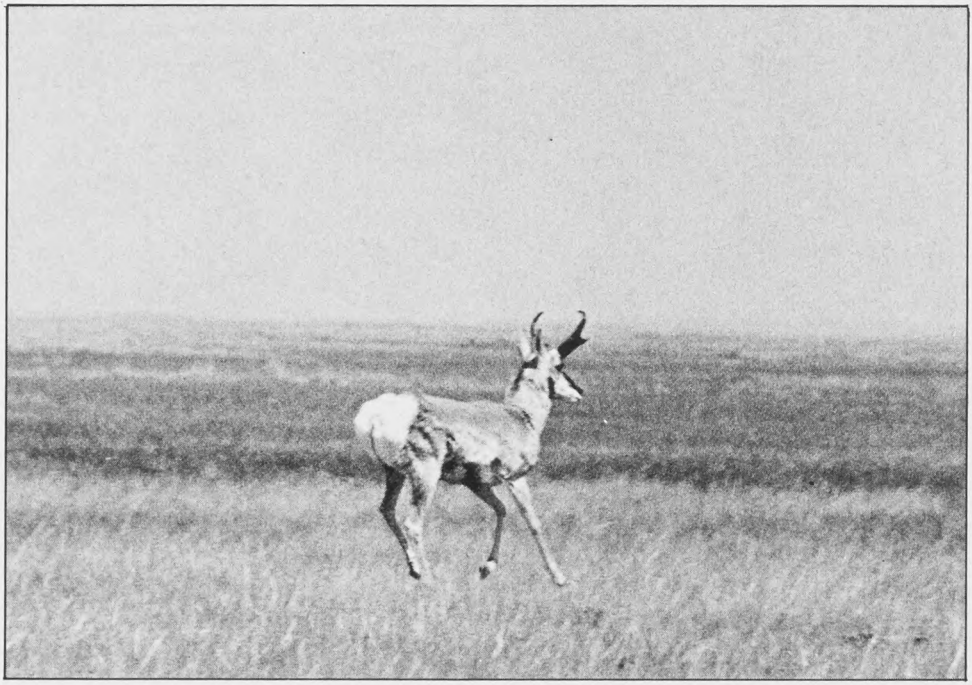


Curled Dock, *Rumex crispus*

Brome, *Bromus inermis*



Pronghorn near Trans Canada Highway in Alberta.



Photos by Dieter Schwanke, July 1971

The holiday

D. SCHWANKE

It was a dark and humid night in the middle of July when wanderlust again reared its pleasant face.

Ten hours later the sun rose on the rolling prairie of south-western Saskatchewan. The scorching sun of noon shimmered on the flat and even stretches of Alberta's rangelands. Cars, filled to the brim with tourists, kept crawling one behind the other like a giant worm in quest of sights to see along the highway leading to "The Holiday".

One half mile north of the road a Pronghorn buck was safely sleeping. I pulled over to the shoulder and, lenses flashing, advanced through gritty sand, through cacti growths arising unsuspected.

The Pronghorn — once also indigenous to Manitoba — is a wary beast. A gorgeous creature marvellously adapted to its environment; fleet of foot, equipped with keenest senses . . . But I don't have to tell you any more. You know the pleasure and excitement of watching, photographing nature. What was amazing to me was that not one of over 200 cars driving past even slowed down to view the creature bounding, at last awake, along the highway.

Further west, when I chugged slowly on the roads through breathtaking mountain scenery, I was quite often honked at and, I suspect, not kindly thought of, holding up the speeding traffic. But there were other people on the road in old dilapidated means of transportation, not seldom covered up with flowers.

"After you," ... "No, thank you, I'm in no hurry," we waved each other on. The younger people in the cars stopped often, taking in the vistas. They were from diverse places and not all spoke English well; but all spoke well of nature's beauty.

They climbed the steepest hiking trails and on a field of snow in Yoho Park I asked a charming girl in leather shorts if she had seen a Mountain Goat.

"Que'est-ce que c'est?" she said, or something of the sort. And I replied, "Une animal blanc avec two horns noirs."

"Ah," she said, "C h e v r o n Montaigne."

PROVINCE OF MANITOBA
CONSERVATION COMMENT

The Case for Ecological Diversity

In an era of increasing environmental gloom the case for ecological diversity merits consideration. Ecological diversity explains the role of variety in our environment. It has real implications in the ways man manipulates his ecosystems, from agriculture to overpeopled cities, from highway building to supersuburbs.

When man first stumbled about
of the Tigris-Euphrates
than a million
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vi

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to the simple.
in vast reaches of
crowded cities where once there
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mergence of man's green thumb along with his sudden ability to produce more than he could eat were seeds for urban life. While agriculture, commerce and urbanization altered his life style, his million years of evolution as a roaming nomad,

DEPARTMENT OF MINES, RESOURCES AND ENVIRONMENTAL MANAGEMENT

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